An interview with Steven Stetson, MD

Good outcomes reported from U.S. Air Force Academy study of VISX Star S3 System

Results of a study conducted by Steven Stetson MD, a refractive surgeon and chief of the Laser Eye Clinic and Ophthalmology Service at the U.S. Air Force Academy in Colorado Springs, demonstrate that the VISX Star S3 system provides consistent results—even at an altitude of 7,000 feet above sea level where cool, dry air can affect both operating room conditions and patient healing.

In a retrospective study, Stetson analyzed outcomes of both PRK and LASIK patients at six months as well as a PRK group at one year. The study included myopes up to -10.00 D with to 4.5 D of astigmatism as well as hyperopes up to +5.00 D with up to 4 D of astigmatism. The average pre-op spherical equivalent for the PRK patients in the six month group was -4.40 while the average spherical equivalent for the LASIK group was -4.04 for the myopes and +2.96 for the hyperopes.

At one year post-op, 97% of 154 patients in the PRK cohort were 20/20 or better and 100% were 20/25 or better. Average spherical equivalent was +0.13. For the 366 PRK patients at six months, 96.7% were 20/20 or better, 97.8% were 20/25 or better, and 100% were 20/40 or better. Average spherical equivalent was +0.29. At six months post-op, 98% of the LASIK group had 20/20 or better UCVA, and 100% were 20/30 or better.

Average spherical equivalent was +0.28.

"Because Air Force policy does not allow LASIK to be performed on active duty personnel, the majority of refractive procedures have been surface ablations," said Stetson.

He attributes the good outcomes for both PRK and LASIK to a combination of technology, operating room environment and post-op care. In order to maintain consistent results at high altitude, Stetson and his colleagues are very careful to control humidity in the OR, keeping it at a constant 35% to 40% while maintaining a temperature of 64 degrees.

Because dryness is the biggest potential problem at high altitude, Stetson puts all laser vision correction patients on artificial tears for six months following surgery.

"The most common problem we face is dry eye, and keeping patients on artificial tears longer helps prevent later sequelae, like corneal haze, " he said. "I also tell patients to refrigerate their artificial tears when at home since this appears to decrease irritation and aid in the healing process."

"Another reason for the good outcomes ... is the VISX pupil tracker."

Stetson also makes regular nomogram adjustments to optimize results. Every two months, he looks at post-op outcomes for patients at one month, three months and six months. "I look at post op spherical equivalent data with a goal for myopes of +0.35 at three months, and +0.25 to + 0.30 at six months," he said. "I make adjustments to the nomogram at 2% intervals to offset post-op regression. I also have made a progressive subtraction from the nomogram of 8% for patients from 45 to 55 years-old and 12% for patients between 55 and 65-years-old."

Another reason for the good outcomes being achieved at the Air Force Academy is the VISX pupil tracker. Stetson said the ActiveTrak system is an major factor in helping produce consistently good outcomes because it can track and center automatically in about 95% of cases. "The VISX Star S3," he notes, "is the only laser system that can capture all three dimensions of intra-operative eye movements without the requirement of pupillary dilation."

Clinical Results